

Nebraska Winter Weather Awareness Day

November 3, 2011

With Fall upon the Great Plains, now is the time to focus attention to winter weather and the dangers it can pose to life and property. **November 3rd, 2011**, has been declared as Winter Weather Awareness Day for the state of Nebraska. Each year, dozens of Americans die due to exposure to the cold. Account for vehicle accidents and fatalities, fires due to dangerous use of heaters and other winter weather fatalities, and you have a significant threat. Other hazards, such as hypothermia and frostbite, can lead to the loss of fingers and toes or cause permanent internal injuries and even death. The very young and the elderly are among those most vulnerable to the potentially harsh winter conditions. Recognizing the threats and knowing what to do when they occur could prevent the loss of extremities or save a life.

A winter storm can last for several days and be accompanied by high winds, freezing rain or sleet, heavy snowfall and cold temperatures. People can be trapped at home or in a car with no utilities or assistance, and those who attempt to walk for help could find themselves in a deadly situation. The aftermath of a winter storm can have an impact on a community or region for days, weeks, or possibly months.



Wind - Some winter storms have extremely strong winds which can create blizzard conditions with blinding, wind driven snow, drifting, and dangerous wind chills. These intense winds can bring down trees and poles, can reduce visibilities to white-out conditions, and can also cause damage to homes and other buildings.

Snow - Heavy snow accumulations can immobilize a region and paralyze a city, stranding motorists, stopping the flow of supplies, and disrupting emergency services. Buildings may collapse and trees and power lines can be destroyed from the heavy snow. In rural regions, homes and farms may be isolated for days, and livestock could be lost.

Cold - Extremely cold temperatures can accompany winter storms and be left in their wake. Infants and the elderly are most susceptible to prolonged exposure to the cold, which can cause potentially life-threatening conditions such as hypothermia and frostbite. Below freezing temperatures can damage vegetation and cause pipes to freeze and burst inside homes.

Ice - Heavy ice accumulations can bring down objects like trees, utility poles and lines, and communication towers. Power can be disrupted or lost for days while utility companies repair the damage. Even a small amount of ice can cause hazardous conditions for motorists and pedestrians.

Now is the time to prepare for the winter season!!

National Weather Service Offices Serving Nebraska

Winter Weather Awareness Day - November 3, 2011

National Weather Service Coverage Area



Far West

National Weather Service
1301 Airport Parkway
Cheyenne, WY 82001
(307) 772-2468

<http://www.weather.gov/cys>

West and North Central

National Weather Service
5250 E. Lee Bird Drive
North Platte, NE 69101
(308) 532-4936

<http://www.weather.gov/lbf>

Southwest

National Weather Service
920 Armory Road
Goodland, KS 67735
(785) 899-7119

<http://www.weather.gov/gld>

South Central

National Weather Service
6365 N. Osborne Drive West
Hastings, NE 68901
(402) 462-4287

<http://www.weather.gov/gid>

East

National Weather Service
6707 North 288th Street
Valley, NE 68064
(402) 359-5166

<http://www.weather.gov/oax>

Far Northeast

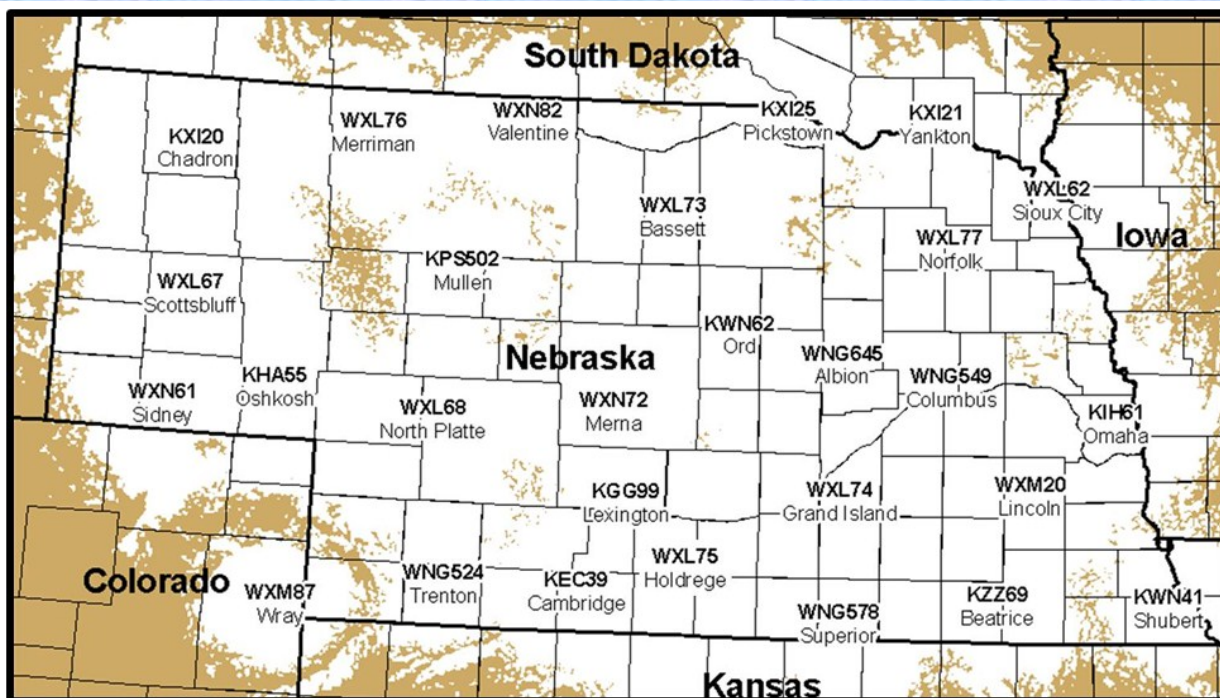
National Weather Service
26 Weather Lane
Sioux Falls, SD 57104
(605) 330-4247

<http://www.weather.gov/fsd>

NOAA Weather Radio

All - Hazards

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NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service office. NWR broadcasts official Weather Service warnings, watches, forecasts and other hazard information 24 hours a day and 7 days a week.

Working with the Federal Communication Commission's (FCC) Emergency Alert System, NWR is an "All Hazards" radio network, making it your single source for comprehensive weather and emergency information. In conjunction with Federal, State, and Local Emergency Managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards, including natural (such as tornadoes or floods), environmental (such as chemical releases or oil spills), and public safety (such as AMBER alerts or 911 telephone outages).

Known as the "Voice of NOAA's National Weather Service," NWR is provided as a public service by the National Oceanic and Atmospheric Administration (NOAA), part of the Department of Commerce. NWR includes 1000 transmitters, covering all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories. NWR requires a special radio receiver or scanner capable of picking up the signal, found in the VHF public service band at these seven frequencies (MHz):

162.400	162.425	162.450	162.475	162.500	162.525	162.550
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Coverage information and SAME Codes for every county in Nebraska can be found at:
<http://www.weather.gov/nwr/Maps/PHP/nebraska.php>

Winter Weather Terminology

Winter Weather Awareness Day - November 3, 2011

What is the difference?

OUTLOOK - Hazardous Weather Outlooks are issued everyday, and serve as a "heads-up" that a significant weather event may be possible in the next 7 days.

ADVISORY - An advisory is issued when winter weather events could cause a significant inconvenience, but could also lead to life threatening conditions if not cautious.

WATCH - A watch is issued when winter weather events have the potential to threaten life and property, but the exact timing and location of the storm is uncertain. Watches are normally issued between 12 to 48 hours in advance.

WARNING - A warning is issued when winter weather events are occurring or are imminent and pose a threat to life and property. Warnings are normally issued between 2 and 24 hours in advance.

Winter Weather Product Criteria

Winter Weather Advisory Products

- ♦ **Freezing Rain Advisory** - Small accumulation of ice (freezing rain and/or freezing drizzle), generally less than 1/4 of an inch
- ♦ **Winter Weather Advisory**
 - For Snow** - Snow accumulation of 3 to 5 inches in 12 hours
 - For Sleet** - Accumulation of ice pellets less than 1/2 of an inch
 - For Snow & Blowing Snow** - Snowfall with blowing snow intermittently reducing visibility to less than 1/2 of a mile
- ♦ **Wind Chill Advisory** - Wind Chill values of -20°F to -29°F

Winter Weather Terminology

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Watch Products

- ♦ **Blizzard Watch** - Conditions are favorable for a blizzard event in the next 12 to 48 hrs.
- ♦ **Winter Storm Watch** - Conditions are favorable for a winter storm event (Heavy Sleet, Heavy Snow, Ice Storm, Heavy Snow and Blowing Snow or a combination of events) to meet or exceed local Winter Storm Warning criteria in the next 12 to 48 hrs.
- ♦ **Wind Chill Watch** - Conditions are favorable for wind chill temperatures to meet or exceed Wind Chill Warning criteria in the next 12 to 48 hours.

Warning Products

- ♦ **Blizzard Warning** - Sustained wind or frequent gusts greater than or equal to 35 miles per hour accompanied by falling and/or blowing snow, frequently visibilities less than 1/4 of a mile for at least 3 hours.
- ♦ **Ice Storm Warning** - Widespread ice accumulation of 1/4 of an inch or more
- ♦ **Winter Storm Warning** - Heavy Snow (snow accumulation of 6 inches or more in 12 hours or 8 inches or more in 24 hours), Sleet (accumulation of ice pellets 1/2 of an inch and greater), Ice (accumulation of 1/4 of an inch or more) and/or heavy Snow and Blowing Snow (wind is below blizzard criteria).
- ♦ **Wind Chill Warning** - Wind chills -30°F or colder

Remember to dress for the season!!

- ♦ Try to stay dry.
- ♦ Wear loose-fitting, light-weight, warm clothing in several layers. Trapped air between these layers can insulate. Layers can be removed to avoid perspiration and subsequent chills.
- ♦ Outer garments should be tightly woven, water repellent, and hooded.
- ♦ Always wear a hat, as half of your body heat can be lost from the head.
- ♦ Mittens, snug at the wrist, are better than gloves.



Winter Weather Dangers

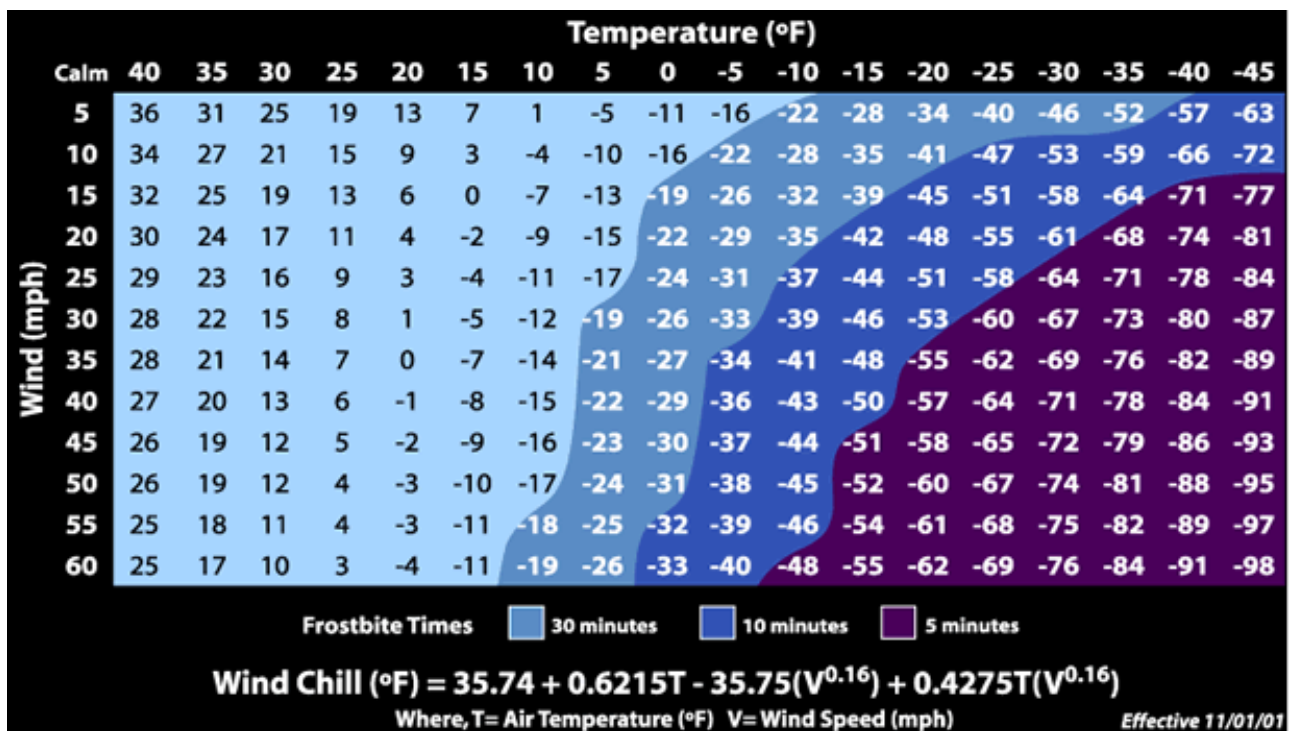
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Exposure to cold can cause frostbite or hypothermia and become life-threatening. Infants and elderly people are most susceptible. What constitutes extreme cold varies in different parts of the country. In the south, near freezing temperatures are considered extreme cold. Freezing temperatures can cause severe damage to citrus fruit crops and other vegetation. Pipes may freeze and burst in homes that are poorly insulated or without heat. Further north, extreme cold means temperatures well below zero.

Wind Chill - is not the actual temperature, but rather how the combination of wind and cold temperatures feel on exposed skin. It is based on the rate of heat loss from exposed skin, and as the wind speed increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. Wind chill will also impact animals, but not impact inanimate objects such as cars or exposed water pipes, because they cannot cool below the actual air temperature.

The NWS Wind Chill Index uses advances in science, technology, and computer modeling to provide an accurate, understandable, and useful formula for calculating the dangers from winter winds and freezing temperatures. More information about the Wind Chill Index can be found at :

<http://www.nws.noaa.gov/om/windchill/>

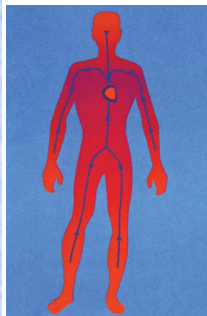
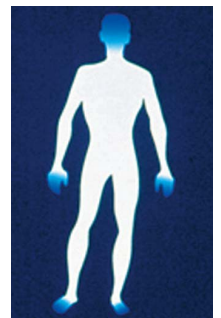


Winter Weather Dangers

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Frostbite - is damage to body tissue caused by extreme cold. A wind chill of -20°F will cause frostbite in just 30 minutes. Frostbite causes a loss of feeling and a white or pale appearance in extremities, such as fingers, toes, ear lobes or the tip of the nose. If symptoms are detected, get medical help immediately! If you must wait for help, slowly rewarm affected areas. However, if the person is also showing signs of hypothermia, warm the body core before the extremities.

Hypothermia - is a condition brought on when extremities are excessively cold, and the body temperature drops to less than 95°F. It can kill. For those who survive, there are likely to be lasting kidney, liver and pancreas problems. Warning signs include uncontrollable shivering, memory loss, disorientation, incoherence, slurred speech, drowsiness and apparent exhaustion. Take the person's temperature. If below 95°F, seek medical care immediately!



If Medical Care is Not Available - warm the person slowly, starting with the body core. Warming the arms and legs first drives cold blood toward the heart and can lead to heart failure! If necessary, use your body heat to help. Get the person into dry clothing and wrap in a warm blanket covering the head and neck. Do not give the person alcohol, drugs, coffee or any hot beverage or food. Warm broth is the first food to offer.

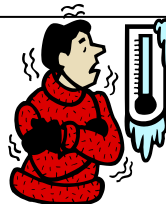
Remember to Avoid Overexertion!

Avoid activities such as shoveling heavy snow, pushing a car, or walking in deep snow. The strain from the cold and the hard labor could cause a heart attack, and sweating could lead to a chill and hypothermia. Take Red Cross CPR and AED training so you can respond quickly to an emergency.

Did You Know?

Injuries Related to Cold:

- ♦ 50% happen to people over 60 years old
- ♦ More than 75% happen to males
- ♦ About 20% occur in the home



Injuries Related to Ice and Snow:

- ♦ About 70% result from vehicle accidents
- ♦ About 25% occur to those caught in a storm
- ♦ Most happen to males over 40 years old



Winter Weather Safety Tips

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Be Prepared Before the Storm Strikes!

When preparing your home or workplace for the upcoming winter season, keep in mind that the primary concerns deal with the loss of heat, power and telephone service, along with a shortage of supplies if a winter storm continues for an extended period of time.

Make sure to have the following supplies available:

- ♦ Flashlight and extra batteries
- ♦ Battery-powered NOAA Weather Radio and portable radio to receive emergency information - these may be your only links to the outside
- ♦ Extra food and water. Have high energy food, such as dried fruit, nuts and granola bars, and food which requires no cooking or refrigeration.
- ♦ Extra medicine and baby items
- ♦ First-aid supplies
- ♦ Heating fuel. Refuel BEFORE you are empty. Fuel carriers may not reach you for days after a winter storm.
- ♦ Emergency heat source: fireplace, wood stove, space heater
Use properly to prevent a fire, and remember to ventilate properly.
- ♦ Fire extinguisher and smoke alarm
Test smoke alarms once a month to ensure they work properly.

On the farm and for pets:



- ♦ Move animals into sheltered areas.
- ♦ Shelter belts, properly laid out and oriented, are better protection for cattle than confining shelters.
- ♦ Haul extra feed to nearby feeding areas.
- ♦ Have plenty of water available. Most animals die from dehydration in winter storms.
- ♦ Make sure your pets have plenty of food, water and shelter.

Winter Weather Safety Tips

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What should I do if caught...

Outside:



- ♦ Find shelter!
- ♦ Attempt to stay dry.
- ♦ Cover all exposed body parts.
- ♦ If there is no shelter available:
 - Build a lean-to, windbreak, or snow cave to protect yourself from the wind.
 - Build a fire for heat and to attract attention.
 - Place rocks around the fire to absorb and reflect heat.
 - Melt snow for drinking water, eating snow will lower your body temperature.

In a Vehicle:

- ♦ Stay in the vehicle! You could quickly become disoriented in wind-driven snow and cold.
- ♦ Run the motor about 10 minutes each hour for heat.
- ♦ Open the window a little for fresh air to avoid carbon monoxide poisoning.
- ♦ Make sure the exhaust pipe is not blocked.
- ♦ Be visible to rescuers!
 - Turn on the dome light at night when running the engine
 - Tie a colored cloth, preferably red, to your antenna or door
 - After the snow stops falling, raise the hood to indicate you need help
- ♦ Exercise from time to time, move arms, legs fingers, and toes vigorously to keep blood circulating and to keep warm.



Inside:



- ♦ Stay inside!
- ♦ When using alternate heat from a fireplace, wood stove, space heater, etc., use fire safeguards and properly ventilate.
- ♦ If you don't have heat available:
 - Close off unneeded rooms.
 - Stuff towels or rags in cracks under doors.
 - Cover windows at night.
- ♦ Eat and drink, providing the body with energy and preventing dehydration.
- ♦ Wear layers of loose-fitting, lightweight, warm clothing. Remove layers to avoid perspiration and subsequent chill.

Winter Weather Travel Tips

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Along with your home and workplace, vehicles also need to be prepared for the upcoming winter season. It is very important to fully check and winterize your vehicle, which includes having a mechanic check your battery, antifreeze, wipers, windshield washer fluid, ignition system, thermostat, lights, exhaust system, heater, brakes, and oil levels.

If you must travel during winter conditions, it is best not to travel alone. Try to plan your travel during the day, and make sure to let others know your destination, route, and when you expect to arrive. Make sure to keep your gas tank near full to avoid ice in the tank and fuel lines.

Always carry a Winter Storm Survival Kit in your car!!

- ♦ Mobile phone, charger and batteries
- ♦ Flashlight with extra batteries
- ♦ First-aid kit
- ♦ Knife
- ♦ Shovel
- ♦ Tool kit
- ♦ Tow rope
- ♦ Battery booster cables
- ♦ Compass and road maps
- ♦ A windshield scraper and brush or small broom for ice/snow removal
- ♦ Blankets and sleeping bags, or newspapers for insulation
- ♦ Rain gear, extra sets of dry clothes, socks, mittens, and stocking caps



- ♦ Large empty can to use as emergency toilet. Tissues, paper towels, and plastic bags for sanitary purposes
- ♦ Small can and waterproof matches to melt snow for drinking water
- ♦ Cards, games, and puzzles
- ♦ High calorie, non-perishable food, such as canned fruit, nuts, and high energy "munchies" (Include a non-electric can opener if necessary)
- ♦ A small sack of sand or cat litter for generating traction under wheels and a set of tire chains or traction mats.
- ♦ A brightly colored (preferably red) cloth to tie to the antenna



Winter Weather Travel Tips

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Road Conditions

Before you travel, check out the latest road conditions. Road report information across Nebraska can be found at the Nebraska Department of Roads web site at: <http://www.511.nebraska.gov/atis/html/index.html>

For in-state information call 511.

When out of state use: 1-402-471-4533.

For Wyoming: <http://map.wyoroad.info/>

out of state 1-888-996-7623

For Colorado: <http://www.cotrip.org/roadConditions.htm>

out of state 1-303-639-1111

For South Dakota <http://www.safetravelusa.com/sd/>

out of state 1-866-697-3511

For Kansas http://511.ksdot.org/KanRoadPublic_VE/Default.aspx

out of state 1-800-585-7623

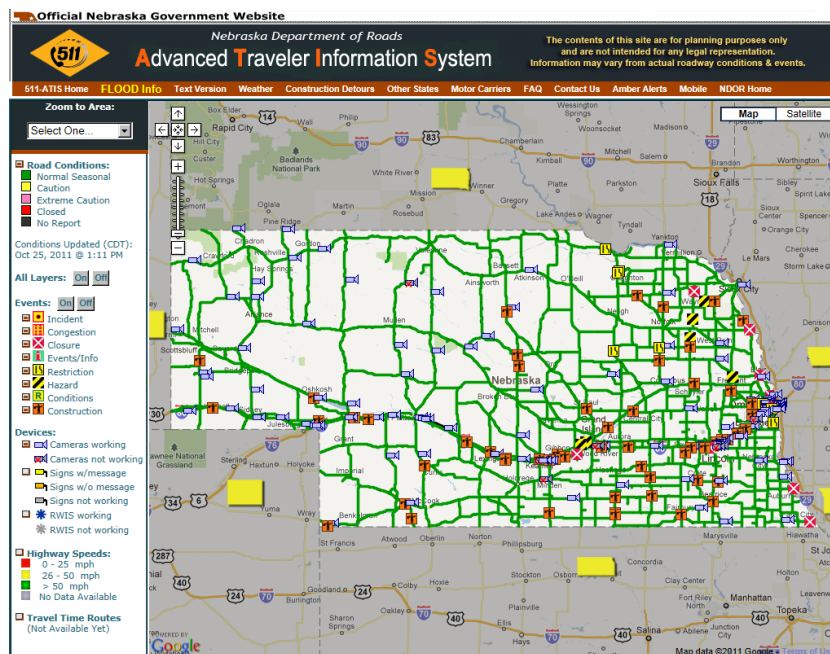
For Iowa: <http://511ia.org>

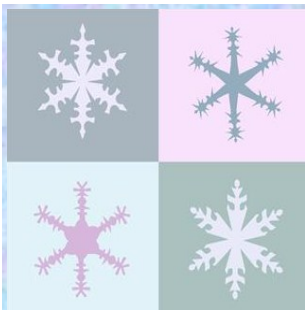
out of state 1-800-288-1047

For Missouri <http://maps.modot.mo.gov/timi/>

out of state 1-800-222-6400

National Traffic and Road Closure Information: <http://www.fhwa.dot.gov/trafficinfo/index.htm>

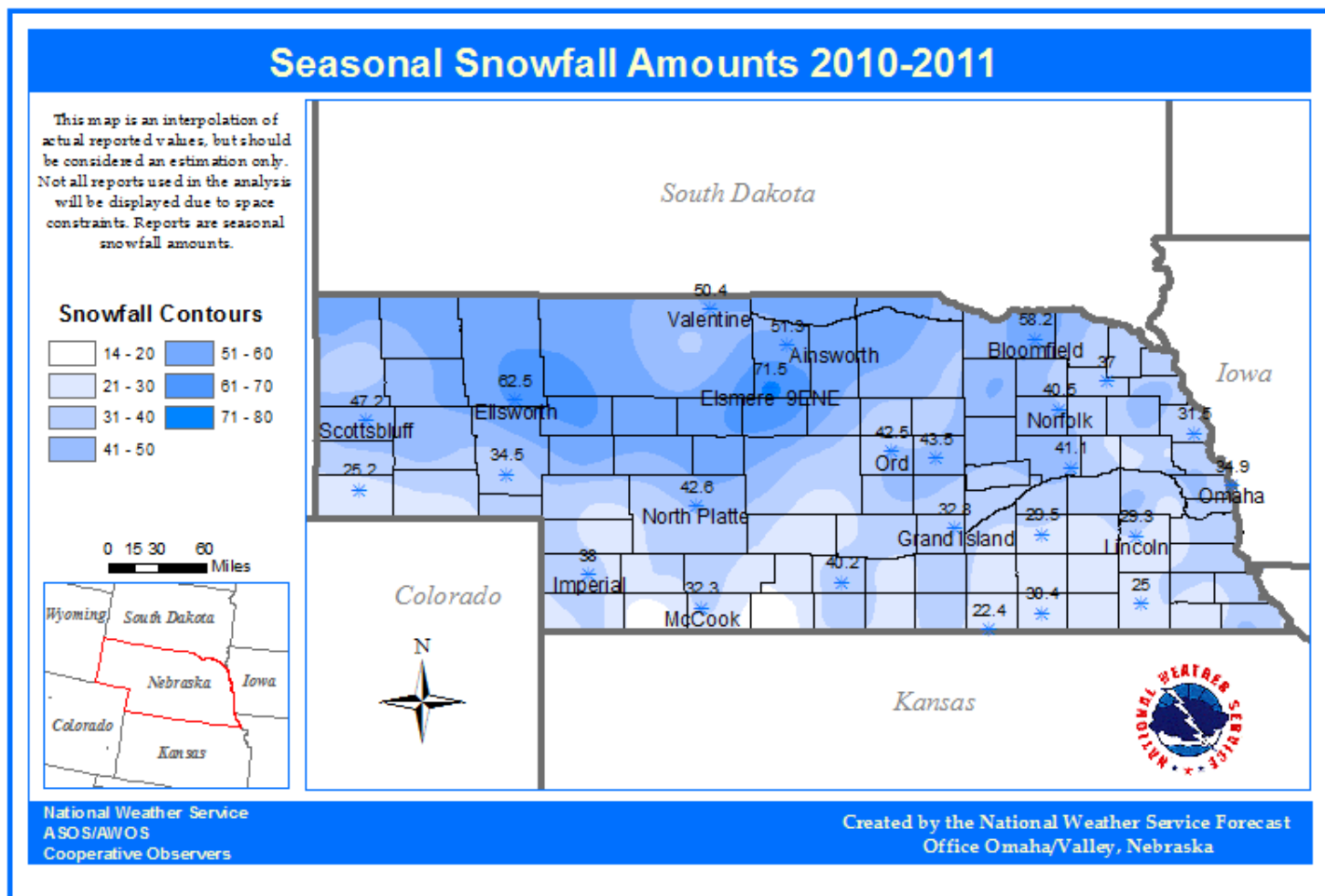




2011 Nebraska Winter Weather Summary

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Statewide Snowfall Map 2010-2011



Seasonal Snowfall 2010-2011

Location	Normal (1981-2010)	2010-2011	Percent of Normal
Scottsbluff	42.1"	47.2"	121%
North Platte	28.5"	42.6"	149%
Valentine	33.3"	50.4"	151%
McCook	28.8"	32.3"	112%
Grand Island	29.0"	32.8"	113%
Norfolk	31.5"	40.5"	133%
Omaha	26.4"	34.9"	132%
Lincoln	25.9"	29.3"	113%

2011 Nebraska Winter Weather Summary

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Western Nebraska Panhandle - Cheyenne, WY

Summary of the 2010-2011 Winter over the western Nebraska Panhandle

The winter of 2010-2011 (which meteorologically is the period December through February) for this region turned out to be quite typical for what is observed during La Niña, the event where water temperatures over the tropical central and eastern Pacific Ocean are cooler than average. La Niña was at moderate to strong strength during the winter.

The winter was characterized by warmer than average temperatures overall during the month of December, near average temperatures for January, and well below average temperatures for February. This pattern of a warm start and cold finish is often seen for this area during La Niña winters. All together the winter was slightly warmer than average across the southern Nebraska panhandle while over the northern Nebraska panhandle overall average temperatures were colder than normal.

Temperatures:

The following table summarizes the monthly and overall winter average temperatures and the departures from normal for select sites over the area:

City	December Average Temp	December Dep from Normal	January Average Temp	January Dep from Normal	February Average Temp	February Dep from Normal	Dec-Feb Average Temp	Dec-Feb Dep from Normal
Chadron	28.4	+3.3	21.0	-1.8	21.3	-6.8	23.6	-1.7
Scottsbluff	30.4	+4.7	26.9	+2.4	25.7	-4.3	27.7	+1.0
Sidney	31.7	+4.9	26.7	+2.2	26.1	-3.5	28.2	+1.2

There were approximately 4 significant intrusions of bitterly cold arctic air over the region, the coldest one occurring from about January 31st through February 3rd. That particular outbreak brought some of the coldest temperatures seen in many years. That was followed a few days later by another very cold period from about February 6th through the 10th. These two outbreaks combined to produce the very cold February overall.

This next table depicts the dates of warmest and coldest temperatures of the winter for selected cities as well as the warmest and coldest average daily temperatures. The total number of days with low temperatures at or below zero and the departure from normal is also noted:

2011 Nebraska Winter Weather Summary

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Western Nebraska Panhandle - Cheyenne, WY Con't

City	Lowest temperature and date	Highest temperature and date	Lowest daily average temp. and date	Highest daily average temp. and date	Number of days with mins at or below zero
Chadron	-28 on Feb. 2	68 on Feb. 16	-11.5 on Feb. 1	48.5 on Feb. 15	21 (+3)
Scottsbluff	-20 on Feb. 2	70 on Feb. 16	-7.0 on Feb. 1	48.5 on Feb. 15	13 (0)
Sidney	-19 on Feb. 2	70 on Feb. 16	-7.0 on Feb. 1	49.0 on Feb. 15	13 (0)

Precipitation:

Seasonal snowfall turned out to be close to average across the northern and central parts of the panhandle but below average across much of the southern panhandle. The most significant storm system brought some moderate to heavy snows and blizzard conditions over the plains during the last couple days in December. Scottsbluff measured **47.2** inches of snowfall for the entire season. Total snowfall over the panhandle for the season ranged from about 45 to 55 inches across the northern and central panhandle to about 25 to 35 inches over the southern panhandle.

Western & North Central Nebraska - North Platte, NE

A mild, benign weather pattern dominated western and north central Nebraska during November and early December. By the middle of December, the pattern shifted, allowing arctic air to drop south for the first significant snowfall to close out the year and a much colder start for 2011. January will be remembered for the significant accumulating snow, bitterly cold temperatures and the extreme wind chills produced. For February, thunderstorms brought a mixture of precipitation of which nearly an inch of ice accumulated in portions of north central Nebraska. March was quiet; however, a major blizzard in mid-April created significant hazards and impacts.

Snowfall during the 2010-2011 season, was generally above normal north of a line from Lisco to Brady. South of this line, snow totals were at or slightly below normal. Snowfall for the season totaled 42.6 inches for North Platte and 50.4 inches for Valentine. For North Platte, the winter season was the 10th snowiest on record, while at Valentine, it was the 18th snowiest on record.

2011 Nebraska Winter Weather Summary

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Western & North Central Nebraska - North Platte, NE Con't.

Weather Pattern Shift Results in Winter Storm to Close out 2010

A major winter storm impacted western and north central Nebraska on December 30th and 31st, 2010, with heavy snow, gusty winds and blizzard conditions. By the time the storm exited the region on New Year's Day, snow accumulations ranged from 3 to 12 inches across all of western and north central Nebraska. Snow drifts in excess of five feet were common with some drifts approaching eight feet in the Nebraska Panhandle. Snow amounts were highest across the central and western sandhills, as well as Holt and Boyd counties where accumulations of 7 to 12 inches occurred. Elsewhere snow accumulations of 3 to 6 inches were common.

January Cold and Snowy

Two separate winter storms impacted the area in January around the 9th and 21st. On January 9th, a large, slow moving winter storm system brought light to moderate snowfall to the region. By the time the storm ended on January 10th, a band of snowfall from 6 to 11 inches deep had fallen from near Ogallala northeast to Ewing.

The second winter storm struck the sandhills and portions of central Nebraska on the 19th. Low pressure aloft, interacted with an approaching arctic air mass which nosed into central Nebraska. The storm produced a band of moderate to heavy snowfall from west central Cherry County, southeast into Custer County. The heaviest snow fell from Mullen to Anselmo, where snow accumulations of 8 and 12 inches were reported respectively.

While significant snows did fall in January the arctic surge on January 11th resulted subzero temperatures throughout. The coldest reading reported was at North Platte where the temperature dropped to 19 below zero at Lee Bird Field.



Thermometer reading 19 below zero at North Platte.

Bitterly Cold Temperatures and an Ice Storm Highlight February

Extreme cold conditions lingered into February as strong northerly winds of 20 to 35 mph combined with the bitter cold arctic air to produce dangerous wind chills. Widespread wind chill readings on the morning of February 1st were below zero and as low as 40 below

2011 Nebraska Winter Weather Summary

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Western & North Central Nebraska - North Platte, NE Con't.

zero occurred in Thedford. The cold start resulted in daytime high temperatures only into the single digits to include zero at Valentine, 3 above zero at North Platte, 4 above zero at Broken Bow and 6 above zero at Imperial. Low temperatures the following morning ranged from 10 to 20 below zero, and combined with less wind produced wind chills that ranged from 15 to 25 below zero on February 2nd.

On the 19th, a slow moving upper level trough of low pressure tracked from northeastern Colorado into southern Nebraska. As this trough lifted east, abundant low level moisture provided a warm rain initially that changed to a mixture of snow, sleet and freezing rain as warmer air aloft lifted over a shallow arctic air mass. The combination of lift and moisture later helped produce thunderstorms and widespread freezing precipitation across the area during the early morning hours of the 20th. By sunrise on the 20th, ice accumulations around a quarter inch were common across the north, while up to a half inch was reported at Thedford and near an inch of ice at Atkinson. Across the northern sandhills, additional snow accumulations from 1 to 5 inches fell on top of the ice making for hazardous travel for all.

April Blizzard Shuts Down I-80

After fairly benign conditions in March, a major blizzard struck western and north central Nebraska on April 14th. A slow moving storm system produced widespread snow throughout and blizzard conditions across the panhandle and southwest Nebraska. In the southwest, snowfall ranged from 8 to 16 inches, with the greatest snow depth recorded in Paxton along the Interstate 80 corridor.

As the storm deepened and the clash between the cold and warm air increased, surface winds strengthened, resulting in blizzard conditions across the panhandle and southwest Nebraska by evening. The strong winds and deteriorating visibilities due to the snow led to numerous traffic accidents, many road closures, some power outages and numerous snow drifts up to five feet. As the number of accidents and stranded motorists increased, Interstate 80 was closed from the Nebraska-Wyoming border east into Lincoln County at North Platte. Many motorists, including tractor trailers, filled all parking lots available and eventually lined a number of roads, including the Newberry Access on-ramp to Interstate 80 in North Platte. The storm exited northeast early on the 15th; however, it was not until afternoon that the interstate was opened to traffic.



Stranded motorists on Newberry Access Road and I-80. Photo courtesy of Teresa Keck.

2011 Nebraska Winter Weather Summary

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Extreme Southwest Nebraska—Goodland, KS

Overview

The winter of 2010-2011 brought below normal temperatures and widely varying snowfall in extreme southwest Nebraska (Dundy, Hitchcock, Red Willow counties). Temperatures ranged from 1 to 3 degrees below normal for the months of December 2010 – February 2011 as shown in the table below.

Station	DJF 2010-2011 Temperature	DJF 1981-2010 Normal	DJF Departure from Normal
McCook	27.4	28.7	-1.3
Benkelman	28.3	29.9	-1.6
Culbertson	26.0	28.9	-2.9
Haigler	27.9	29.6	-1.7
Trenton Dam	28.2	29.5	-1.3

Table 1: DJF means December 2010, January 2011, February 2011

Meanwhile, seasonal snowfall (Jul 2010 - Jun 2011) was highly variable across the three counties, ranging from near nine inches below normal at Trenton Dam in Hitchcock county to 3.5 inches above normal at McCook. The most snow fell in extreme northern Dundy County where a cooperative observer 17 miles north of Parks reported a total of 38.5 inches. The snowfall record at that location is not long enough for a normal snowfall value to be computed.

Station	2010-2011 Snowfall	1981-2010 Normal	Departure from Normal
McCook	32.3	28.8	+3.5
Benkelman	31.4	30.3	+1.1
Culbertson	24.0	28.5	-4.5
Haigler	23.7	22.7	+1.0
Max 13N	30.1	-	-
Palisade	24.7	26.2	-1.5
Parks 17N	38.5	-	-
Stratton	16.5	-	-
Trenton Dam	16.0	24.7	-8.7

Table 2: 2010-2011 Snowfall, Normals, Departure from Normal



2011 Nebraska Winter Weather Summary

Winter Weather Awareness Day - November 3, 2011



Extreme Southwest Nebraska - Goodland, KS Con't.

October - December

The 2010-2011 winter season was slow to get underway in extreme southwest Nebraska. The last three months of 2010 were generally quiet in terms of weather, with occasional episodes of locally dense fog and gusty winds, but little in the way of wintry weather. It wasn't until December 11th that a low pressure system finally brought noteworthy wind gusts of 53 mph at McCook airport and 43 mph in Trenton. In fact, the first significant snowfall held off until the last day of the year as a winter storm on December 31st dropped four to six inches of snow. The highest total was at our cooperative station 17 miles north of Parks.

January

Right on the heels of the New Year's Eve snowfall, the first blast of Arctic air arrived in the region. Wind chill temperatures dropped below zero New Year's night. That was just the first of a series of Arctic intrusions during the month. On January 11th and again on the 12th, Wind Chill Advisories were upgraded to Wind Chill Warnings in the area when the combination of cold air and wind brought readings of 25 to 30 degrees below zero. A week later, a combination of dense fog, freezing drizzle and light snow resulted in numerous traffic accidents when roads became slick and afternoon temperatures held in the teens. The month of January concluded with a weak weather system dropping around an inch of snow, followed by several nights of wind chill values down to -25 degrees.

February - March

The second significant snow of the season occurred on February 8th-9th when a low pressure area dropped 4-5 inches of snow from Haigler to McCook. Six to seven inches of snow fell in neighboring Kansas counties to the south. Like its predecessor, this storm was followed by a surge of Arctic air.

Probably the biggest weather event in March was a two-day period of strong winds on the 23rd-24th. Peak wind gusts reached 54 mph at McCook and 48 mph at Trenton on the 23rd, followed by gusts of 40-45 mph on the 24th.

April

Mother Nature dealt the area one last winter blast in mid-April when an intense low pressure area produced a variety of weather on the 14th-15th. Heavy rain, thunder and lightning began the event, which then transitioned to heavy snow and blizzard conditions in many areas. The storm ultimately dropped a half foot of snow across Dundy and Hitchcock counties, while McCook was spared with under two inches. Finally, wind gusts to 60 mph resulted in blizzard conditions as visibilities dropped to near zero. Dozens of utility poles were downed in Hitchcock County resulting in numerous power outages in the area.

2011 Nebraska Winter Weather Summary

Winter Weather Awareness Day - November 3, 2011

South Central Nebraska - Hastings, NE

South Central Nebraska saw quite a range in snowfall during the 2010-2011 winter season, ranging from 14 inches in Wilsonville of Furnas County to 43.5 inches in Greeley of Greeley County.

The snowfall season began on a dry note; but just as soon as we rang in the New Year, snow seemed to be piling on our doorsteps. As Christmas came and went, cumulative seasonal snowfall amounts across the area were minimal, with the Tri-Cities reporting just a trace at Grand Island, 0.1" at Kearney and 0.9" at Hastings. Though snow was limited early on, there were a couple of occasions when portions of the area felt the effects of light freezing drizzle, resulting in slick roads and accidents. Unfortunately, the icy conditions played a role in a few fatalities. On November 20th, 4 people were killed while travelling on Interstate 80 near Henderson. On December 15th, a collision between a car and semi-tractor trailer resulted in the death of 2 people on Interstate 80 near Waco.

The last few days of 2010 finally brought the first widespread accumulating snow of the season to much of South Central Nebraska. The main event affected the area during the pre-dawn and daytime hours on December 31st, when the majority of South Central Nebraska picked up a solid 1 to 3 inches of snow, with northwest areas generally from Ord to Gothenburg reporting higher amounts in the 4 to 6 inch range.

Along with the snowfall, the latter half of December featured the beginning of prolonged ice jam flooding along the Platte River in southern Hall County. Some of the worst flooding concentrated along a 5 to 8 mile stretch of the river near Alda, including the Shoemaker Island area and just west of the Amick Acres subdivision near Doniphan, and resulted in a few home evacuations. In January, the ice jam caused problems across southern Buffalo and northern Kearney Counties. Some of the worst flooding that affected residences started on the 2nd along a portion of Sweetwater Avenue roughly three miles east of Kearney, and between the north channel of the river and the eastbound lanes of Interstate 80. Several short term evacuations occurred. Eventually, the ice jamming issues arose along the Merrick and Hamilton County line near Central City for a few days between

Holdrege	40.2"
Osceola	37.1"
Hastings NWS Office	34.0"
Grand Island	32.8"
Naponee	30.5"
York	29.5"
Miller	25.5"
Minden	24.5"
Bruning	22.4"
Cambridge	18.6"
Seasonal Snowfall Totals From the Area	

2011 Nebraska Winter Weather Summary

Winter Weather Awareness Day - November 3, 2011

South Central Nebraska - Hastings, NE Con't.

January 10th and 13th. The primary impact was felt approximately two miles south of Central City along Highway 14 in the Willowbend residential area, where water got within a few feet from an access road leading to homes. One business south of Central City was flooded, and water rose up to the bottom of the Highway 14 Bridge.



Flooding at 60th road west of Doniphan.

For most of South Central Nebraska, the first widespread heavy snow of the season fell between January 8th and 10th. Storm total snowfall across most of South Central Nebraska was in the 7 to 12 inch range. For places such as Grand Island and Hastings, this event set new records for January 9th calendar day snowfall and liquid equivalent precipitation. Once the snow ended, bitterly cold air became the story for a few days, with most of the area struggling to reach 10 degrees on both the 11th and 12th.

Hastings NWS	11.6"
Ord	11.5"
Grand Island	11.0"
Kearney Airport	10.2"
Geneva	10.0"
Hebron	9.0"
6ese Clay Center	7.2"
Franklin	6.8"
January 8 th -10 th Snowfall Totals	

On January 19th, 3 to 6 inches, and locally 8 inches, of snow fell across the area. The highest snowfall totals were recorded at Loup City (8.5 inches), near Arcadia (8 inches), and near McCool Junction and Ord (7.5 inches).

Winter conditions returned to the area with snowfall, strong winds, blowing snow and bitterly cold temperatures infiltrating the area on January 31st and continuing into February 1st. In addition to the snowfall, strong northwesterly winds of 30 to 40 mph, with locally higher gusts, were also observed across the area. These strong winds not only presented restricted visibilities to around 1/4 of a mile at times, they also promoted wind chill values near -30 degrees through many locations.

Site	Lowest Wind Chill (Degrees Fahrenheit)	Highest Wind Gust (MPH)
Grand Island, NE	-29	43
Hastings, NE	-31	45
Holdrege, NE	-30	41
Kearney, NE	-33	39
Lexington, NE	-33	40
Ord, NE	-32	39

2011 Nebraska Winter Weather Summary

Winter Weather Awareness Day - November 3, 2011

South Central Nebraska - Hastings, NE Con't.

By the time January was all said and done, it was one for the record books in both Grand Island and Hastings. In Grand Island, January 2011 ended up as the 2nd snowiest January on record, with 18.7 inches, based on 116 years of data going back to 1896. Looking at Hastings, January 2011 ended up as the 3rd snowiest January on record, with 20.0 inches, based on 117 years of data going back to 1895.

By February 24th, most of us were hoping that winter was over, but Mother Nature had other ideas. The daytime hours featured an intense, narrow band of snow across southern and eastern sections of the Hastings County Warning Area, bringing with it a reminder that the winter season would continue for at least a few more weeks. Storm total snowfall reports indicated that a widespread 5 to 9 inches, and locally higher amounts, fell within a corridor from around Alma, east-northeast through the Franklin, Blue Hill, Clay Center and Geneva areas. One of the highest reported totals of 12 inches came from the Cooperative Observer 4 miles SW of Blue Hill. The primary snow band was only about 20 to 30 miles wide and pounded the affected areas with moderate to heavy snow and near white-out conditions for hours before gradually sinking off to the south and east.

After another bout of snow and colder temperatures, additional ice jamming developed on the Platte River, but this time was a bit further downstream, affecting portions of Merrick and Polk Counties. The ice was jammed under the Highway 92 bridge crossing the Platte River approximately 2 miles south of Clarks, and was reported to have extended back west by as much as 3 miles. Residents near the river east of the bridge successfully protected their homes by building an earthen berm ahead of the rising water, but a mile and half section of Prairie Island Road on the west side of the bridge did have to be closed as it became covered in water. There was little change in conditions for several days into the beginning of March, but the ice jam finally broke free the morning of March 4th, resulting in a quick drop in the river height.



Ice jam flooding at the Highway 92 bridge south of Clarks.

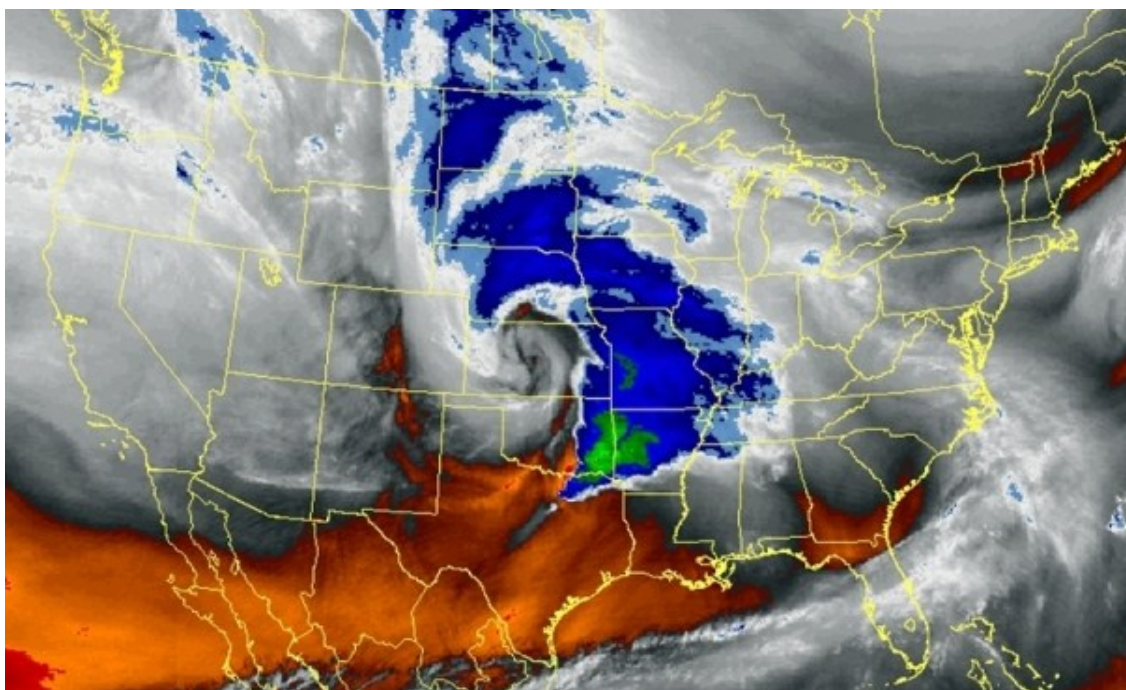
2011 Nebraska Winter Weather Summary

Winter Weather Awareness Day - November 3, 2011

South Central Nebraska - Hastings, NE Con't.

The month of March brought a couple more bouts of snow, with the first event coming on March 7th through the 9th. This 3-day event dropped 4 to 6 inches of snow, mainly northwest of a line from Wilsonville to Fullerton. A second event came toward the end of the month, the 24th and 25th, as a late winter storm system dropped anywhere from 1 to 5 inches of slushy snow across the area. The higher snowfall accumulations occurred along and north of a line from Kearney to York.

By the beginning of April, winter finally seemed to be over with record-breaking high temperatures near 90 degrees across the Tri-Cities on April 9th. However, just a few days later, the snow would appear yet again. On April 14th and 15th, a strong spring system made its way across the Plains, bringing along the full gamut of weather - from large hail and tornadoes to blizzard conditions. Locations near Ord and Osceola received up to 3 inches of snow. Most other areas received more rain than snow. In addition to the precipitation, a strong accompanying surface low pressure system brought strong northwesterly winds, with sustained speeds of 30 to 40 MPH, and gusts over 50 MPH. Lexington reported a gust of 56 MPH, while Hastings reported 54 MPH and Ord and Aurora reported 51 MPH.



Water Vapor satellite imagery of the strong storm system affecting the Central Plains on April 14th-15th.

2011 Nebraska Winter Weather Summary

Winter Weather Awareness Day - November 3, 2011

Eastern Nebraska - Omaha/Valley, NE

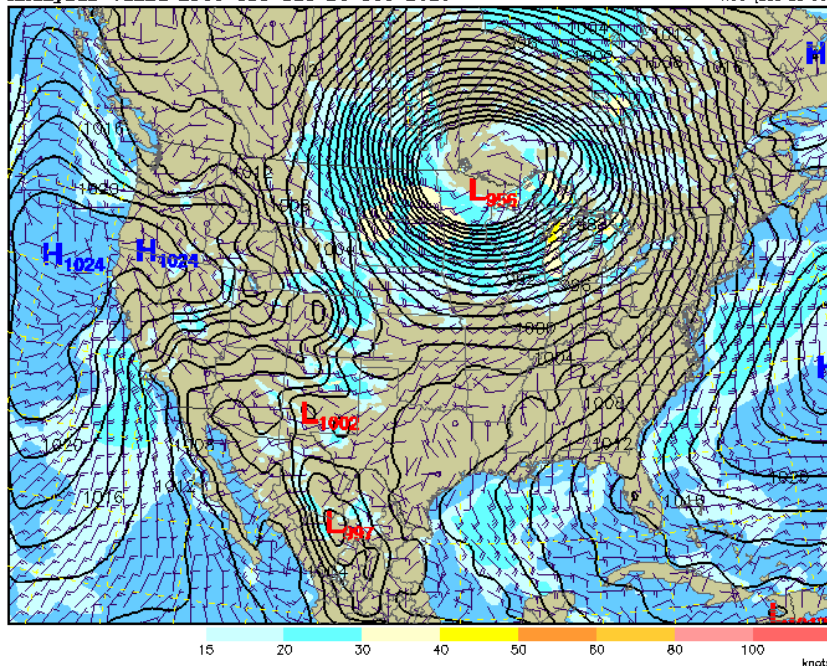
Recap of the 2010/2011 Winter Weather Season Across Eastern Nebraska

The winter season of 2010/2011 was much less severe across eastern Nebraska than the prior season when record or near record stretches of snow cover prevailed along with frequent road closures due to blizzards or near blizzard conditions. Before the 2010 season began, however, one of the deepest low pressure systems, outside of hurricanes, was recorded in the continental U.S. on October 26th. This mid-fall cyclone tracked across the Great Lakes region and produced a central low pressure of 28.21 inches in in Big Fork, Minnesota. This low also brought wind gusts of 45 to over 50 mph to eastern Nebraska on October 27th. Although the 2010/2011 winter season overall was less severe than the previous year, it was not without notable storms. The following are the most significant.

Wind Speed (knots) / MSLP (mb)

Analysis valid 2300 UTC Tue 26 Oct 2010

RUC (23z 26 Oct)



Intense Low Pressure - 28.21 Inches - Big Fork, Minnesota

Blizzard hits northeast and east central Nebraska on December 11th

The first storm of the season produced blizzard conditions from northeast Nebraska into and just south of the Omaha area on December 11th. Low pressure that developed rapidly across eastern Nebraska caused blizzard conditions to develop in northeast Nebraska early in the morning of the 11th. The blizzard conditions spread into east central Nebraska around noon as the low tracked into Iowa. Although snow totals from this storm were only in the 2 to 5 inch range, north winds of 40 to more than 50 mph caused visibilities to fall to near zero, stranding some motorists in northeast Nebraska. The strong winds and snow also downed large tree limbs in the Omaha area knocking out power to at least 6,000 OPPD customers. Bitterly cold wind chill values followed this storm.

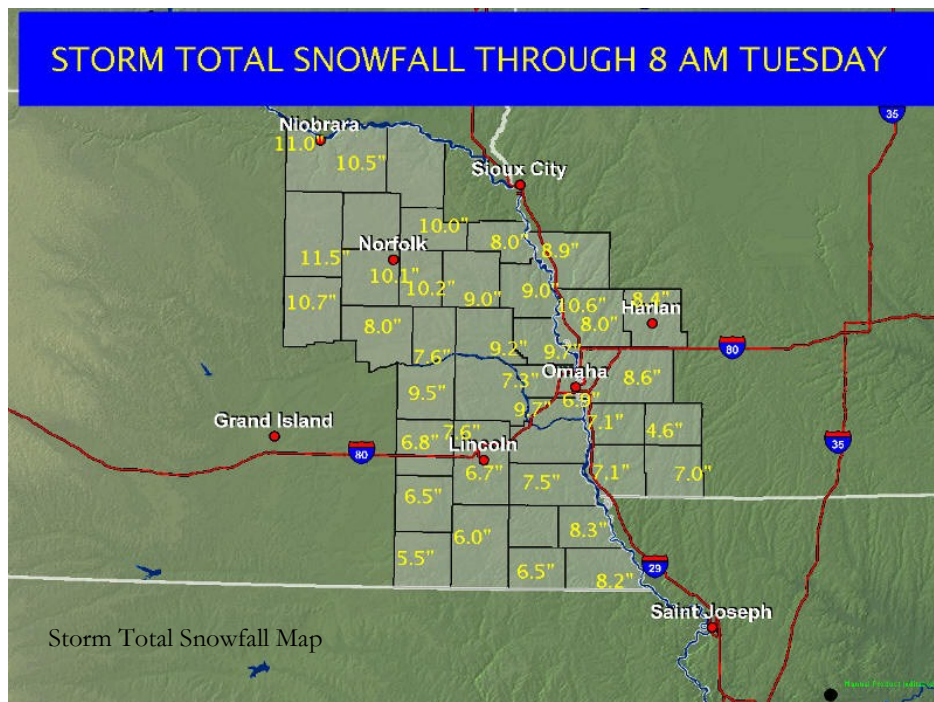
2011 Nebraska Winter Weather Summary

Winter Weather Awareness Day - November 3, 2011

Eastern Nebraska - Omaha/Valley, NE Con't.

Prolonged snow event drops heavy snow over much of eastern Nebraska on January 9th and 10th

A 36 to 48 hour period of snow brought snowfall of 7 to 10+ inches to much of eastern Nebraska on January 9th and 10th. Although for most of the storm winds were light or moderate, limiting the blowing and drifting snow, they did pick up toward the end of the event causing some blowing and drifting snow with reduced visibilities. Bitterly cold wind chills also followed this storm as Arctic air spilling in behind it produced a day or so of wind chill values around or colder than 20 below zero.



Heavy snow in southeast Nebraska on January 20th

Snowfall of around 6 inches fell across southeast Nebraska over a 12 to 15 hour period as low pressure tracked from Nebraska into Kansas. Moisture was limited with this system, but cold temperatures made this system a proficient snow producer with snow to liquid ratios of around 20 to 1 or higher.

Late afternoon and evening winter storm hits parts of eastern Nebraska on January 22nd

Snow, occasionally heavy, developed along an area of low pressure that stretched from eastern Kansas into eastern Nebraska during the afternoon and evening of January 22nd. Snow intensities exceeding 1 inch per hour fell in a relatively narrow band from near Norfolk through Fremont and into the western sections of Omaha where storm totals reached 6 to 8 inches. Once again Arctic air spilling in behind the system produced a period of bitterly cold wind chills.

2011 Nebraska Winter Weather Summary

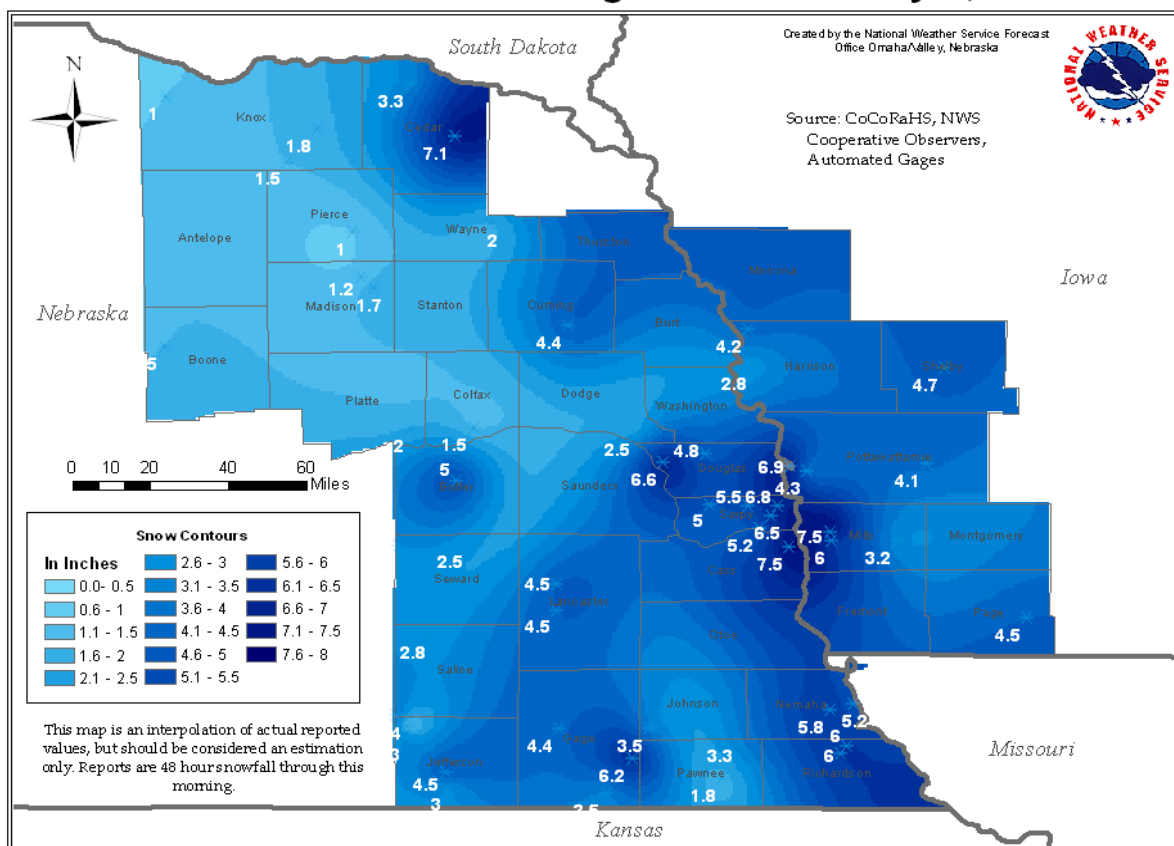
Winter Weather Awareness Day - November 3, 2011

Eastern Nebraska - Omaha/Valley, NE Con't.

Massive winter storm affects a large part of the U.S. from late January into the first few days of February, including parts of eastern Nebraska

Near blizzard conditions hit parts of eastern Nebraska on January 31st and February 1st following a period of freezing drizzle and freezing rain mixed with light snow. Snowfall from the storm in eastern Nebraska was around 5 to 8 inches, with the heaviest from around Lincoln and David City east and southeast through Omaha and points just south. Although some county roads in the region were closed from this storm, the storm was more notable for affecting a large part of the U.S. outside of eastern Nebraska. As the system was developing it split into 2 large pieces. One piece dropped across the southwestern U.S. pulling Arctic air with and setting record cold temperatures from west Texas into New Mexico and Arizona. The other large piece brought a massive winter storm to the southern plains and Great Lakes region with freezing rain, heavy snow and blizzard conditions as it tracked the Great Lakes region.

48 Hour Snowfall Through 7am February 2, 2011



2011 Nebraska Winter Weather Summary

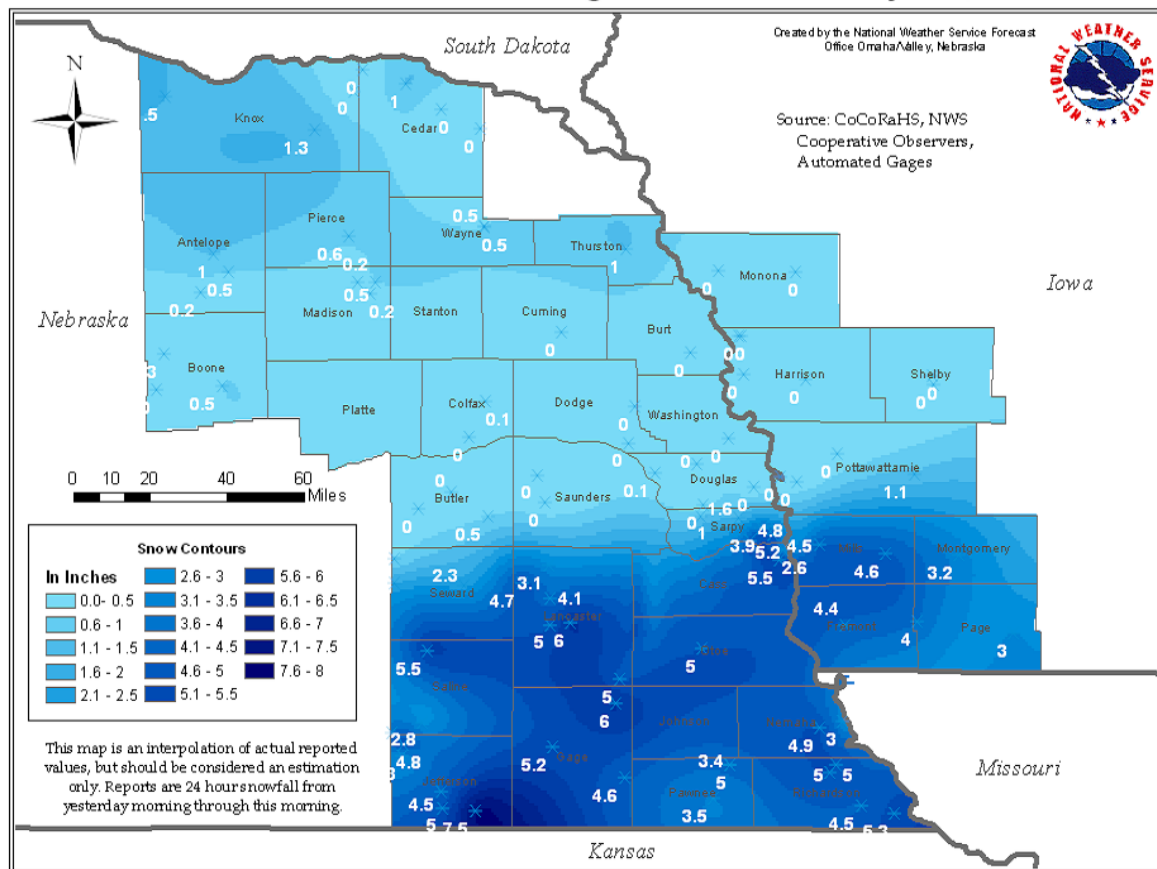
Winter Weather Awareness Day - November 3, 2011

Eastern Nebraska - Omaha/Valley, NE Con't.

Winter storm splits Omaha metro on February 24th

An upper level disturbance that tracked across the Central Plains brought an area of 3 to 5 inches of snow to southeast Nebraska and southwest Iowa. The snow briefly lowered visibilities to 1/4 mile or less in some areas. Since it fell during the evening commute, it caused numerous accidents in the Lincoln area and parts of the Omaha metro. The snow area abruptly cutoff across the Omaha metro area with much of Douglas county receiving only flurries while 3 to 4 inches of snow fell across the southern sections of the metro. This abrupt change from dry roads to snow-packed ones caused accidents and traffic tie-ups as commuters traveled from the dry roads to the slick ones, especially on Highway 75 in the Bellevue area and along Interstate 80 near the Lancaster and Seward county line. Fifty-two cars were involved in a pile up on Interstate 80 west of Lincoln between the Milford and Northwest 48th Street interchanges.

24 Hour Snowfall Through 7am February 25, 2011





2011 Nebraska Winter Weather Summary

Winter Weather Awareness Day - November 3, 2011



Eastern Nebraska - Omaha/Valley, NE Con't.

Winter at a Glance : Snowfall

Snowfall totals for 2010-2011 were higher than normal at Omaha, Lincoln and Norfolk. Seasonal snowfall totals included 29.3 inches at Lincoln, to 34.9 inches at Omaha and 40.5 inches at Norfolk.



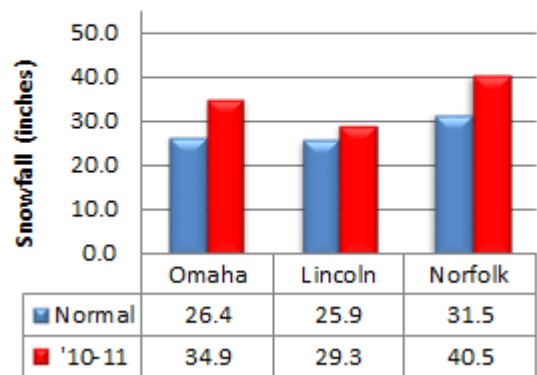
Temperatures

Temperatures during December, January, and February were on average 3 to 3.5 degrees below normal, with January being 5 to 7 degrees below normal.



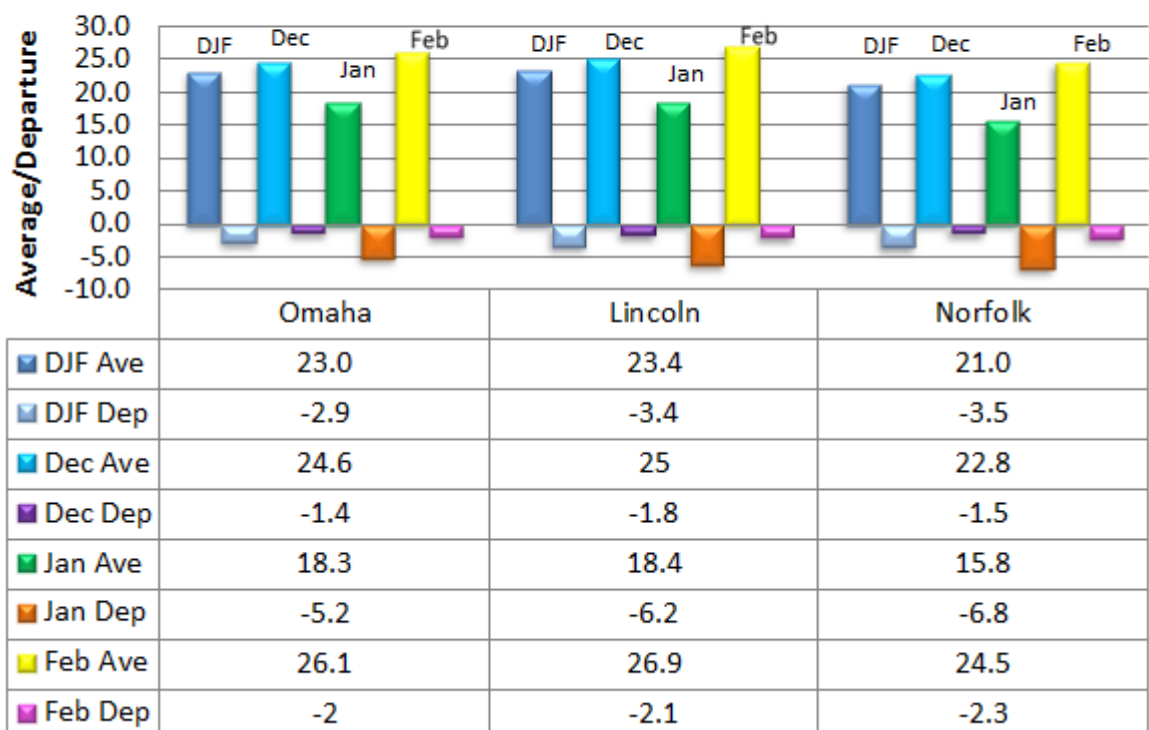
SNOW 2010-2011

Normals from 1981-2010



WINTER TEMPERATURES 2010-2011

Normals from 1981-2010





2011 Nebraska Winter Weather Summary

Winter Weather Awareness Day - November 3, 2011



Extreme Northeast Nebraska - Sioux Falls, SD

October – November



Winter was slow to start across northeast Nebraska, with October high temperatures averaging near 70 degrees, November high temperatures averaging in the upper 40's, and no measurable snow until the last few days of November. On November 29th, a strong cold front swept through northeast Nebraska, dropping temperatures from the low 40's during the early morning to the low 20's by late afternoon. Light freezing rain impacted the area with the initial frontal passage, then light snow began during the late afternoon as the midlevel front pushed south through the region. Snowfall accumulation in northeast Nebraska was around 2 inches, with the highest snowfall totals occurring to the north in southeast South Dakota and southwest Minnesota.



December



Temperatures rebounded briefly at the beginning of December, allowing snow to melt throughout the region. By the 10th day of the month, high temperatures were back in the mid to upper 40's under moist, southerly flow. On the 11th, a very strong low pressure system took an unusual track, dropping from central Montana southeast through the Northern Plains. Snowfall accumulations were 4 to 5 inches; however the most dangerous impact of this system were northwesterly winds that gusted in excess of 50 mph during the heaviest snowfall. The combination of wind and snow resulted in blizzard conditions for nearly 12 hours, and the closure of Interstate 29 from Sioux Falls to Omaha.



Throughout the following several weeks, most systems producing snowfall tracked to the north of the region, resulting in only a few additional inches of snowfall accumulation as the end of December neared. However, in nature's attempt to compete with the Christmas Blizzard of 2009, a strong low pressure system developed over the four corners region of the United States and moved northeastward into the Northern Plains on New Year's Eve. The track of this storm kept the highest snowfall totals to the north and west of the region, and dry air that began filtering in from the south helped keep snowfall totals to a much more moderate 2 to 4 inches.



January



The month of January began with frigid temperatures slowly warming back into the 30's and generally dry conditions. On January 9th-10th, low pressure developed over the eastern Rockies and subsequently moved over portions of the Central Plains, lifting warm, moist air ahead of the system on the 9th and bringing a frontal boundary through the area on the 10th. This system resulted in a prolonged period of snowfall that began around daybreak on the 9th and ended after midnight on the morning of the 11th. Snowfall totals from this system were 9 to 12 inches over the 40 hour period.

2011 Nebraska Winter Weather Summary

Winter Weather Awareness Day - November 3, 2011

Extreme Northeast Nebraska - Sioux Falls, SD Con't.

Through the remainder of the month, cold and mostly dry conditions dominated the region, with a few brief shots of snowfall, and one 3 to 4 inch event on the 22nd that occurred as an Alberta Clipper swung through southern South Dakota and Nebraska.

February – March

Late winter closely resembled the latter half of January, with several 1 to 3 inch snowfalls and temperatures oscillating around normal winter values. Several heavy snow events occurred both to the north and south of the region, leaving northeast Nebraska below its average precipitation totals by the end of March. Temperatures through this period were a degree or two below average despite a brief warm-up into the 60's in mid-March, with wintry temperatures returning for the end of the month.

April

Winter made one last gasp in mid April across northeast Nebraska, less than a week after severe convective weather began impacting the same areas. A cold front dropped through the area on the morning of the 15th, decreasing temperatures from the mid 40's overnight to the lower 30's by mid afternoon. Rain changed over to snow as the front moved through, resulting in a quick 1 to 2 inches of accumulation before melting overnight.

Snowfall Statistics in Northeast Nebraska (* Indicates missing data during the period of record)

	Nov	Dec	Jan	Feb	Mar	Apr	Total	Avg
Wakefield	0.0*	5.1	15.1	6.5	7.7	2.5	36.9*	36.5
Newcastle	2.0	9.6	15.7	8.3	6.5	5.5	47.6	34.5

